

Remarks

The above-referenced application has been reviewed in light of the Examiner's Advisory Action mailed on March 9, 2007. Claims 1, 4, 7, 12, 14 and 17 have been amended. Therefore, Claims 2-5, 7-10, 12-15 and 17-20 are currently pending in this application. The Examiner's reconsideration of the rejections is respectfully requested, particularly in view of the above amendments and the following remarks.

In accordance with the Office Action, Claims 4, 7, 14 and 17 drew objections for informalities. Claims 4, 7, 14 and 17 have been amended to correct said informalities.

In accordance with the Office Action, Claims 2-5, 7-10, 12-15 and 17-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,804,134 to Proebsting. Claims 1, 4, 7, 12, 14 and 17 have been amended.

Amended Claim 2 recites, *inter alia*, a "CAM . . . comprising a plurality of segments arranged in an array, wherein each of the plurality of segments includes a plurality of CAM cells, each of the plurality of CAM cells comprises a wordline, a matchline and a sinkline, the wordline being shared by all of the cells in a same row, the matchline and sinkline being shared by all of the cells in a same segment of the row, wherein each of the plurality of segments is substantially the same size, and each of a plurality of matchlines connects to the same number of CAM cells."

The 134 to Proebsting et al. is generally directed towards a ternary content addressable memory having array blocks. Proebsting et al. fail to show that each of the plurality of segments is substantially the same size, and actually teach away from equally sized segments by advocating hierarchical segments in which each successive

segment is larger than the preceding segment. The Examiner relies on Proebsting at col. 9, lines 25-30, and col. 12, lines 41-62 for a showing that the segment sizes may be arbitrary. Such reliance is misplaced.

Proebsting fairly shows that the *increase* in size for successive segments might be an arbitrary positive integer. All of Proebsting's embodiments and claimed advantages are directed towards hierarchical segments of increasing size (e.g., +2, +6, etc.). A broad interpretation of Proebsting might fairly hold that the particular *increase* in size per segment might be an arbitrary positive integer (see, e.g., Proebsting at col. 12, lines 30-47; col. 15, lines 16-34). Unfortunately, Proebsting failed to contemplate, much less teach or suggest, that there should not be any increase in segment size. In contrast, Applicants' presently claimed invention has substantially same-sized segments, where there is no increase for successive segments. Thus, Proebsting fails to teach or suggest "wherein each of the plurality of segments is substantially the same size", as recited in amended Claim 2.

In addition, Proebsting teaches match lines each connected to a greater number of CAM cells than the preceding matchline. Thus, Proebsting fails to teach or suggest "each of a plurality of matchlines connects to the same number of CAM cells" as recited in amended Claim 2.

It shall be understood that embodiments according to Applicants' currently amended Claim 2 offer the distinct advantage of matchlines for finding matching words in segments of a CAM without the need to discharge all of the other matchlines for every search cycle. In addition, since each matchline does not connect to all cells in a

wordline, but rather connects to a constant number of cells, its capacitance does not increase as the CAM gets wider. Thus, as the widths of CAMs increase, the presently claimed matchlines substantially avoid the decreased operating speed and increased power consumption of conventional CAM architectures. This feature is patentably distinguishable over prior art such as Proebsting, in which matchlines are connected to a greater number of CAM cells as the width of the CAM array is increased, thus slowing the wider CAM arrays and/or consuming more power.

Therefore, amended Claim 2 is neither taught nor suggested by the '134 to Proebsting et al. Similarly, amended Claims 7, 12 and 17, which each recite like features, are also neither taught nor suggested by the '134 to Proebsting et al., whether taken alone or in combination with any of the other references of record in this case.

Conclusion

Accordingly, it is respectfully submitted that amended independent Claims 2, 7, 12 and 17 are in condition for allowance for at least the reasons stated above. Since Claims 3-5, 8-10, 13-15 and 18-20 each depend from one of the above claims and necessarily include each of the elements and limitations thereof, it is respectfully submitted that these claims are also in condition for allowance for at least the reasons stated, as well as for reciting additional patentable subject matter. Thus, each of Claims 2-5, 7-10, 12-15 and 17-20 is in condition for allowance. All issues raised by the Examiner having been addressed, reconsideration of the rejections and an early and favorable allowance of this case are earnestly solicited.

Respectfully submitted,

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